Surface Magnetism In 4d Transition Metal Surfaces

C. Hwang (KRISS), S. Han (Kyungsang U.), J.S. Kang (CUK), I. G. Baik, and E. Vescovo (NSLS)

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Magnetism in reduced dimension has been studied for the last two decades and it undergoes a second stage of its study with the use of scanning tunneling microscopy. The study of noble magnetic nano structure has become a cutting-edge in the field of magneto-electronic areas. We have quite limit number of bulk ferromagnet, which can be used as an element in forming the nano structures. However, there has long been a trial to find the ferromagnetic order from 4d or 5d transition metals. So far, not much convincing results has been found as an evidence for the onset of ferromagnetism in especially 4d transition metals. We have checked the surfaces of Rh and Ru as a possible candidate for the existence of long range ferromagnetic order on top surfaces using magnetic linear dichroism and spin-resolved photoemission spectroscopy. The Ru surface is shown to be a ferromagnet in that we can clear see the exchange splittings.